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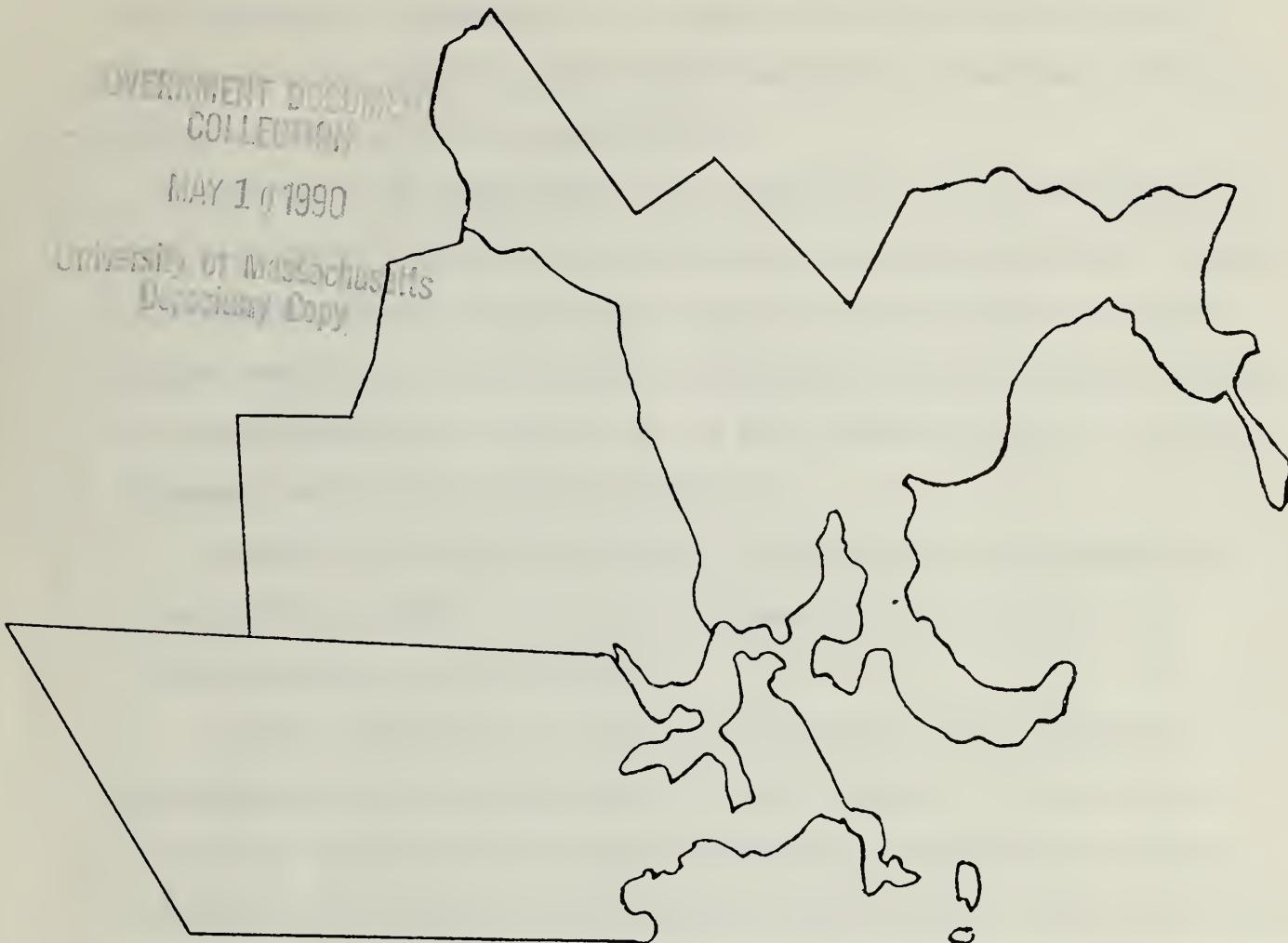
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EXECUTIVE SUMMARY

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LUNG CANCER INCIDENCE IN
QUINCY, WEYMOUTH, & BRAINTREE

1982-1986



Massachusetts Department of Public Health
Division of Environmental Epidemiology
and Toxicology
Community Assessment Unit

July, 1989

8/13/246



EXECUTIVE SUMMARY

At the request of the local boards of health as well as local and state legislative offices and concerned citizens, from Quincy, Weymouth and Braintree the Massachusetts Department of Public Health, Division of Environmental Epidemiology and Toxicology (MDPH, DEET) conducted an investigation of lung cancer incidence for the years 1982-1986.

Interest in this investigation was prompted by: 1) a recent preliminary investigation of lung cancer in Quincy which indicated a significant increase and a possible cluster of lung cancer cases in one area of the city and 2) concern over possible environmental contamination related to several historical and ongoing industrial activities in the Fore River area as well as future industrial activities proposed for the area.

In addition to assessing the rates of lung cancer in each census tract the investigation attempted to evaluate the impacts of both occupation and cigarette smoking on this population.

Overall, considering each town as a whole, lung cancer occurred at approximately the rate expected for the years 1982-1986. A statistically significant elevation in the rate of lung cancer was observed for both males and females in census tract 4178 in Quincy (the Houghs Neck, Germantown section of the city). Statistically significant elevations in either males or females were observed in census tracts 4225, 4226, and 4227 in Weymouth and in census tract 4191 in Braintree. Elevations were also noted in census tracts 4171, 4173, 4175, 4177, 4179, 4180, 4181, and 4182 in Quincy, census tracts 4222, 4223, and 4228 in Weymouth and census tracts 4193, 4194, 4195, 4196 and 4197 in Braintree. However the aforementioned elevations were not statistically significant and it is more likely that they are due to chance. Findings such

as these suggest something other than an environmental association alone, as it would be expected that any community-wide exposure to lung carcinogens would be accompanied by an increase in lung cancer in both sexes.

The possible cluster of cases initially observed in the preliminary investigation was discovered to be due principally to a number of citizens residing in a senior citizen apartment complex. Due to age restrictions for residence in these types of communities, it is unlikely that these individuals resided at this address during the latency period of their cancers. As the rates are standardized for the age distribution of the population this finding does not explain the significant elevation in lung cancer observed in this census tract, but may explain the cluster of cases observed.

Analysis of smoking status revealed that overall townwide/citywide smoking status was not radically different than that found in the rest of the state. The calculation of risk ratios indicated an increase in smoking prevalence among all Weymouth males and Quincy females in census tract 4178. Though both of these findings were statistically significant, the observed increases were weak. Given the limitations of the available smoking data, these conclusions should be interpreted with caution.

Available occupational information for lung cancer cases was also evaluated. Although several individuals in each community listed occupations which are often associated with an increased risk of exposure to lung carcinogens, the available occupational data did not allow researchers to quantify what role occupation may have played in the development of lung cancers in this area.

Of the individuals reporting occupation to the cancer registry 20% of Quincy males and 3.9% of Quincy females, 8.6% of Weymouth males and 17.0% of Braintree males reported occupational titles associated with an increased risk of exposure to lung carcinogens.



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It is beyond the scope of this investigation to provide an assessment of current respiratory health in the communities of Quincy, Weymouth and Braintree. Because of the long latency period for lung cancer, the current lung cancer cases are probably indicative of exposure to lung carcinogens that occurred 20-40 years ago.

Several of the census tracts where elevations were observed border the Fore River area. This report cannot demonstrate the synergistic roles that smoking, occupation and/or environmental exposures may have had in the development of disease in the area where elevations were observed but, none the less, has established that these residents have developed lung cancer more often than those elsewhere in any of the three towns considered separately or combined.

Based upon these findings the Department recommends that:

- 1) Smoking cessation campaigns be considered and targeted in some of these areas and
- 2) The results of the analyses in this report should be considered in the assessment of current or potential future environmental impacts in certain geographic regions of the three town area.

